

Hydrothermal Vents

(geothermal vents)

First discovered in 1977 off of S. America

Found on ridges and hotspots

Like hot springs, geysers on land

Avg. depth ~2,000m

Water temp up to 400°C (750°F) 4x boiling – under high pressure

“Black smokers” – hotter, iron monosulfide dissolved causes color (Pb, Zn, Co, Cu, Ag)

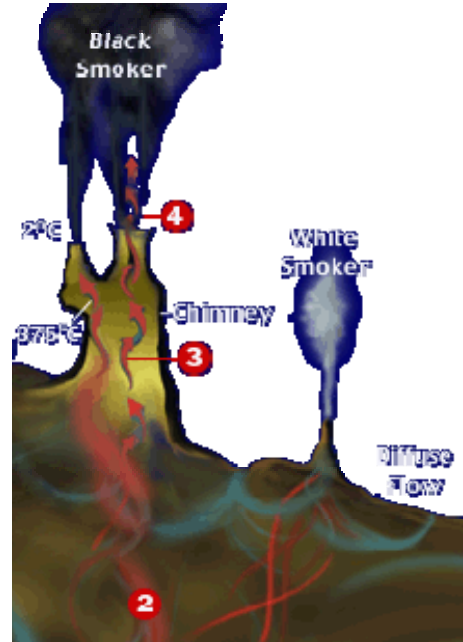
“White smokers” – cooler, barium, calcium, and silicon

May have profound affect on ocean chemistry and heat budget (34% of ocean heat?)

Chimneys grow (precipitate) up to 9m (30 ft) high in 18 months

Reach heights of ~50m

Collapse to form “sulfide mounds”



Vent Communities (> 300 new species)

Support rich ecosystems – only one NOT dependent on sun light!

(“Whale falls” carcass – but whale ate krill, that ate plankton, that used sunlight)

They do need O₂ which gets into the ocean as a byproduct of photosynthesis.

Chemosynthetic bacteria at base of food chain

- Symbiotic Giant red tube worms (no digestive system, red blooded) 1.5m long, 2cm thick, live > 200 years
- gigantic clams (~30cm)
- mussels
- crabs
- shrimp
- deep-water skates

